

REMARKS

Applicant and the Applicant's Attorney would like to thank the courtesies extended by Examiner during the Interview held on 24 June 2008. The Applicant gave a power point presentation to discuss the present invention in comparison to the prior art, most specifically Sinko, U.S. Pat. No. 6,129,610, U.S. Pat. No. 5,171,861, issued to Ernhofter et al., and U.S. Pat. No. 4,497,719, issued to King. The presentation focused on the differences between the prior art and the present application. As an example, the presentation focused on the limitations of the Sinko reference, and the lack of compatibility of the Ernhofter et al. and King references in environments of the present application. In light of the discussion of the interview, the Applicant has amended the claims, as shown above. In view of the amendments and the comments below, Applicant respectfully requests that the application be passed to allowance.

Claim Rejections – 35 U.S.C. § 103

Claims 1-4 and 6-12 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Sinko, U.S. Pat. No. 6,129,610 (Sinko '610) in view of King et al., U.S. 4,497,719 (King). Claim 5 was rejected over Sinko in view of King, and further view of Ernhofter, et al., U.S. Pat. No. 5,171,861 (Ernhofter). Applicant has amended claim 1, from which the other claims depend, to state that the corrosion inhibitor is "pigment grade" and the "corrosion inhibitor in organic coating applications is capable of preventing corrosion of aluminum after a 2000 hour salt spray exposure test." Support can be found within the specification at Example 17. Applicant has also cancelled claim 12, and has cancelled reference to lead and copper within the claims. As discussed below, Sinko does not show or teach such a corrosion inhibitor having such inhibitive properties, and teachings of King and Ernhofter are not compatible with corrosion inhibiting compositions applicable in organic coatings. The combination of Sinko with either King and/or Ernhofter does not obviate claims 1-11 in the application.

The present invention is directed towards specific corrosion inhibiting compounds that are novel and useful in preventing corrosion as is required in real world situations. A "pigment grade" quality implies: solid consistency, non-interference with paint stability, non-interference with curing mechanisms of resins in coating formation processes, limited but effective solubility in water and chemical affinity to interfere and effectively inhibit, in this particular case, the atmospheric corrosion of aluminum.

For example, the criteria of usefulness for corrosion inhibitors within the aircraft industry is to be effective in organic coating applications on Aluminum to at least a minimum of a 2000 hour salt spray exposure. Sinko '610 describes corrosion inhibitors, but does not describe corrosion inhibitors that have the necessary qualities as recited in claim 1. As noted in the attached Declaration of the inventor, Dr. John Sinko, who is also the inventor of Sinko '610, Sinko '610 does not disclose corrosion inhibiting compounds that can meet the limitations of claim 1 directed specifically for aluminum. While Sinko '610 does disclose corrosion inhibiting compounds that include DMTD and DMTD derivatives, the compounds were not utilized in real world situations, and specifically were not directed toward applications in organic coatings on aluminum. Furthermore, not every DMTD and DMTD derivative is of pigment grade applicable and useful in organic coating applications on Aluminum. Sinko '610 does show various metal compounds of DMTD and derivatives, but it does not show the compounds recited in claim 1, and the compounds of Sinko '610 do not meet the minimum values of claim 1. In fact, the understanding in the field of art at the time of invention would not have provided any suggestion or teaching in regards of the corrosion inhibitor mechanism of the present compositions, as the role of Cu-rich intermetallic inclusions in the corrosion mechanism of high strength aluminum was not understood.

King's disclosure is directed towards use of selected transition metal salts of one selected thiadiazole as high pressure and antiwear additives in lubrication systems, such as would be used in engine oils, lubricating greases and the like. King does not teach or show the use of the above mentioned metal salts for use in corrosion inhibition systems, and more specifically in organic coating applications intended for aluminum protection against corrosion. The disclosure is directed towards additives for greases and lubricants, and does not teach or suggest that such products could be incorporated into systems of the present invention.

Ernhoffer et. al, also discusses the use of thiadiazole derivatives for use in lubrication systems, such as would be used in engine oils, lubricating greases and the like. It will be noted that the disclosed thiadiazole derivatives have liquid consistency, are soluble in non-polar solvents (i.e. grease) and are insoluble in water. Also, as stated above, "pigment grade" quality implies: solid consistency, non-interference with paint stability, non-interference with curing mechanisms of resins in coating formation processes, limited but effective solubility in water and chemical affinity to interfere and effectively inhibit, in this particular case, the atmospheric corrosion of aluminum.

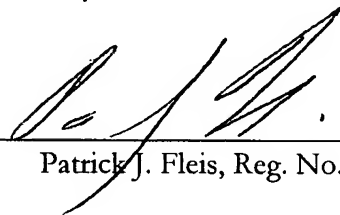
Consequently, it will be apparent that the thiadiazole derivatives according to Ernhofer are not pigment grade and are not suitable for and useful in organic coating applications. Further, mercapto (-SH) functionality of the thiadiazole moiety of the aryl-sulfonate derivatives discussed in Ernhofer is chemically blocked according to the reactions described in Ernhofer. As the consequence, these derivatives lack the strong chemical affinity toward the Cu-rich intermetallic inclusions in high strength aluminum, which is the driving force of the spontaneous chemisorption and of the specific action mechanism of some thiadiazoles in inhibiting atmospheric corrosion of aluminum.

There is no teaching or suggestion in Sinko '610 how such a non-compatible lubricant additive, as taught in either King or Ernhofer, could be used in the system of Sinko '610, or how such an incompatible additive could be used in systems of the present application. As such, it would not be obvious to combine Sinko '610 with either King or Ernhofer to arrive at the present invention, as there is no teaching or suggestion in either reference as to how they could be combined to arrive at the present invention. More particularly there is no teaching or suggestion from the cited patents on how to formulate corrosion inhibiting compounds suitable for organic coating applications and capable of preventing atmospheric corrosion on Aluminum for 2000 hours in salt spray test Conditions. Accordingly, independent claim 1, as amended, is believed to be patentably distinguished from the prior art, and allowance of claim 1, along with dependent claims 2-4 and 6-11, is respectfully requested.

Conclusion

Applicant has amended claim 1 to more succinctly recite what the applicant considers as his invention. Claim 12 has been cancelled. No new matter has been added with these amendments. Allowance of claim 1, along with dependent claims 2-11, is respectfully requested. Applicant respectfully requests that the Examiner contact the undersigned if there are any further matters related to the present application.

Respectfully Submitted,

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9 July 2008

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Enclosures: RCE Transmittal Letter
Declaration of the inventor, Dr. John Sinko
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